

IN THE CLAIMS:

1 1. (Previously Presented) A solid electrolytic capacitor comprising a capacitor
2 element having an anode foil and a cathode foil wound with a separator interposed therebetween,
3 the capacitor element being provided with a solid electrolyte layer of an electroconductive
4 polymer by impregnating the capacitor element, after being chemically repaired, with a
5 polymerizable monomer and an oxidizing agent,

6 wherein the binder of the separator comprises a compound with a vinyl group, and
7 the content of the binder in the separator is 10 to 20% with respect to the total weight of the
8 separator by immersing the capacitor element in hot water at a temperature of 60 to 100°C prior
9 to the chemical repair.

1 2. (Previously Presented) A solid electrolytic capacitor comprising a capacitor
2 element having an anode foil and a cathode foil wound with a separator interposed therebetween,
3 the capacitor element being provided with a solid electrolyte layer of an electroconductive
4 polymer by impregnating the capacitor element with a polymerizable monomer and an oxidizing
5 agent,

6 wherein the separator contains as a binder 10 wt% or more of a compound with a
7 vinyl group, and one or two compounds selected from acetylene diol and dimethyl lauryl amine
8 oxide are added to the capacitor element.

1 3. (Previously Presented) A solid electrolytic capacitor comprising a capacitor
2 element having an anode foil and a cathode foil wound with a separator interposed therebetween,
3 the capacitor element being provided with a solid electrolyte layer of an electroconductive
4 polymer by impregnating the capacitor element with a polymerizable monomer and an oxidizing

5 agent, wherein a compound with a vinyl group is added to the separator, a borate compound is
6 added to the capacitor element and heated, and a conjugate composed of a borate compound and
7 the compound with a vinyl group is added to the capacitor element.

1 4. (Previously Presented) The solid electrolytic capacitor according to claim 3,
2 characterized in that the borate compound is boric acid or borax.

1 5. (Previously Presented) The solid electrolytic capacitor according to claim 3,
2 characterized in that the separator contains as a binder 10 wt% or more of a compound with a
3 vinyl group, and a predetermined coupling agent is added to the capacitor element prior to
4 impregnation with the polymerizable monomer and the oxidizing agent.

1 6. (Previously Presented) The solid electrolytic capacitor according to claim 5,
2 characterized in that the coupling agent is a single coupling agent, or two or more coupling
3 agents selected from a silane coupling agent, a titanium coupling agent, and an aluminum
4 coupling agent.

1 7. (Previously Presented) A solid electrolytic capacitor comprising a capacitor
2 element having an anode foil and a cathode foil wound with a separator interposed therebetween,
3 the capacitor element being provided with a solid electrolyte layer of an
4 electroconductive polymer by impregnating the capacitor element with a
5 polymerizable monomer and an oxidizing agent, wherein a compound with a vinyl group is
6 added to the separator, and a conjugate composed of dodecylbenzenesulfonic acid and the
7 compound with a vinyl group is added to the capacitor element.

1 8. (Previously Presented) A solid electrolytic capacitor comprising a capacitor
2 element having an anode foil and a cathode foil wound with a separator interposed therebetween,
3 the capacitor element being provided with a solid electrolyte layer of an electroconductive
4 polymer by impregnating the capacitor element with a polymerizable monomer and an oxidizing
5 agent,

6 wherein a compound with a vinyl group is added to the separator, and a conjugate
7 composed of sodium naphthalene-sulfonate and the compound with a vinyl group is added to the
8 capacitor element.

1 9. (Previously Presented) A solid electrolytic capacitor comprising a capacitor
2 element having an anode foil and a cathode foil wound with a separator interposed therebetween,
3 the capacitor element being provided with a solid electrolyte layer of an electroconductive
4 polymer by impregnating the capacitor element with a polymerizable monomer and an oxidizing
5 agent,

6 wherein a compound with a vinyl group is added to the separator, and the
7 capacitor element wound using this separator is immersed in a polyimide silicon solution to form
8 a film composed of polyimide silicon and a compound with a vinyl group on the surface of an
9 oxide film.

1 10. (Previously Presented) A solid electrolytic capacitor comprising a capacitor
2 element having an anode foil and a cathode foil wound with a separator interposed therebetween,
3 the capacitor element being provided with a solid electrolyte layer of an electroconductive
4 polymer by impregnating the capacitor element with a polymerizable monomer and an oxidizing
5 agent,

6 wherein a compound with a vinyl group is added to the separator, and the
7 capacitor element wound using this separator is immersed in a polyimide silicon solution to
8 form, on the surface of an oxide film, a film consisting of two layers, one of which is of a
9 compound with a vinyl group and the other of which is formed thereon of polyimide silicon.

1 11. (Previously Presented) The solid electrolytic capacitor according to any of
2 claims 1 to 3 and 7 to 10, characterized in that the compound with a vinyl group is polyvinyl
3 alcohol.

1 12. (Previously Presented) The solid electrolytic capacitor according to any of
2 claims 1 to 3 and 7 to 10, characterized in that the polymerizable monomer is a thiophene
3 derivative.

1 13. (Previously Presented) The solid electrolytic capacitor according to claim 12,
2 characterized in that the thiophene derivative is 3,4-ethylene dioxythiophene.

1 14. (Previously Presented) A method for manufacturing a solid electrolytic capacitor
2 comprising the steps of forming a capacitor element by winding an anode foil and a cathode foil
3 with a separator interposed therebetween, chemically

4 repairing the same, and then impregnating the capacitor element with a
5 polymerizable monomer and an oxidizing agent to form a solid electrolyte layer of an
6 electroconductive polymer,

7 wherein the binder of the separator comprises a compound with a vinyl group, and
8 the content of the binder in the separator prior to chemical repair is adjusted to be 10 to 20% with

9 respect to the total weight of the separator by immersing the capacitor element in hot water at a
10 temperature of 60 to 100°C prior to the chemical repair.

1 15. (Currently Amended) A method for manufacturing a solid electrolytic capacitor
2 comprising impregnating a capacitor element formed by winding which an anode foil and a
3 cathode foil with a separator interposed therebetween, with a polymerizable monomer and an
4 oxidizing agent to form a solid electrolyte layer of an electroconductive polymer,

5 wherein a separator containing as a binder 10 wt% or more of a compound with a
6 vinyl group is used as the separator, and one or two compounds selected from acetylene diol and
7 dimethyl lauryl amine oxide are added to the capacitor element prior to impregnation with the
8 polymerizable monomer and the oxidizing the oxidizing agent.

1 16. (Previously Presented) A method for manufacturing a solid electrolytic capacitor
2 characterized in that an anode foil and a cathode foil are wound with a separator composed of a
3 compound with a vinyl group interposed therebetween to form a capacitor element, the capacitor
4 element is impregnated with a solution of a borate compound and heated to form a conjugate
5 composed of the borate compound and the compound with a vinyl group, and a solid electrolyte
6 layer comprising an electroconductive polymer is formed thereafter.

1 17. (Previously Presented) The method for manufacturing a solid electrolytic
2 capacitor according to claim 16, characterized in that a separator containing as a binder 10 wt%
3 or more of a compound with a vinyl group is used as the separator, and a predetermined coupling
4 agent is added to the capacitor element prior to impregnation with the polymerizable monomer
5 and the oxidizing agent.

1 18. (Previously Presented) The method for manufacturing a solid electrolytic
2 capacitor according to claim 17, characterized in that the coupling agent is a single coupling
3 agent, or two or more coupling agents selected from a silane coupling agent, a titanium coupling
4 agent, and an aluminum coupling agent.

1 19. (Previously Presented) A method for manufacturing a solid electrolytic capacitor
2 characterized in that an anode foil and a cathode foil are wound with a separator composed of a
3 compound with a vinyl group interposed therebetween to form a capacitor element, the capacitor
4 element is impregnated with a solution of dodecylbenzenesulfonic acid to form a conjugate
5 composed of the dodecylbenzenesulfonic acid and the compound with a vinyl group, and a solid
6 electrolyte layer of an electroconductive polymer is formed thereafter.

1 20. (Previously Presented) A method for manufacturing a solid electrolytic capacitor
2 characterized in that an anode foil and a cathode foil are wound with a separator composed of a
3 compound with a vinyl group interposed therebetween to form a capacitor element, the capacitor
4 element is impregnated with a solution of sodium naphthalenesulfonate to form a conjugate
5 composed of the sodium naphthalenesulfonate and the compound with a vinyl group, and a solid
6 electrolyte layer comprising an electroconductive polymer is formed thereafter.

1 21. (Previously Presented) A method for manufacturing a solid electrolytic capacitor
2 comprising impregnating a capacitor element formed by winding which an anode foil and a
3 cathode foil with a separator interposed therebetween, with a polymerizable monomer and an
4 oxidizing agent to form a solid electrolyte layer of an electroconductive polymer,

5 wherein a compound with a vinyl group is added to the separator, the capacitor
6 element wound using this separator is impregnated with a polyimide silicon solution to form a
7 film composed of a polyimide silicon and a compound with a vinyl group on the surface of an
8 oxide film, and a solid electrolyte layer composed of an electroconductive polymer is formed
9 thereafter.

1 22. (Previously Presented) A method for manufacturing a solid electrolytic capacitor
2 comprising impregnating a capacitor element formed by winding which an anode foil and a
3 cathode foil with a separator interposed therebetween, with a polymerizable monomer and an
4 oxidizing agent to form a solid electrolyte layer of an electroconductive polymer,

5 wherein that a compound with a vinyl group is added to the separator, the
6 capacitor element wound using this separator is impregnated with a polyimide silicon solution to
7 form, on the surface of an oxide film, a film consisting of two layers one of which is of a
8 compound with a vinyl group and the other of which is formed thereon of a polyimide silicon,
9 and a solid electrolyte layer composed of an electroconductive polymer is formed thereafter.

1 23. (Previously Presented) The method for manufacturing a solid electrolytic
2 capacitor according to any of claims 14 to 16 and 19 to 22, characterized in that the compound
3 with a vinyl group is polyvinyl alcohol.

1 24. (Previously Presented) The method for manufacturing a solid electrolytic
2 capacitor according to any of claims 14 to 16 and 19 to 22, characterized in that the
3 polymerizable monomer is a thiophene derivative.

1 25. (Previously Presented) The method for manufacturing a solid electrolytic
2 capacitor according to claim 24, characterized in that the thiophene derivative is 3,4-ethylene
3 dioxythiophene.

4 26-28. (Cancelled)